NON-PUBLIC?: N
ACCESSION #: 8705080202
LICENSEE EVENT REPORT (LER)

FACILITY NAME: Fort Calhoun Station, Unit No. 1 PAGE: 1 of 4

DOCKET NUMBER: 05000285

TITLE: Loss of Offsite AC Power Due to Personnel Error
EVENT DATE: 04/04/87 LER #: 87-009-00 REPORT DATE: 05/04/87

OPERATING MODE: 5 POWER LEVEL: 000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION
50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:
NAME: Mark Frans, Maintenance Engineer TELEPHONE #: 402-426-4011

SUPPLEMENTAL REPORT EXPECTED: No

ABSTRACT: While in the refueling shutdown condition at 1359 (CST) on April 4, 1987, an unplanned loss of all off-site AC power occurred due to personnel error. Off-site AC power was restored when operators reclosed the breakers that tripped as a result of the personnel error.

The loss of off-site AC power occurred when electrical maintenance personnel were performing maintenance on a transformer secondary side non-segregated bus duct. They inadvertently pulled the wrong potential transformer (PT) fuses, resulting in the tripping of an on-line transformer, secondary side breakers and a resultant temporary loss of all off-site AC power to the plant. Off-site power was restored within four minutes when the tripped breakers were reclosed.

To prevent future power losses of this type, the following actions will be taken: 1) labels will be mounted next to the local 4.16KV switchgear voltmeters to properly identify their sensing points, 2) caution signs will be posted on the door to the transformer PT fuses and next to the transformer PT fuses, 3) the maintenance procedure will be revised to list the transformer PT fuses to be pulled, and 4) information will be sent to electrical maintenance personnel concerning the event and noting precautions.

(End of Abstract)

TEXT: PAGE: 2 of 4

On April 4, 1987, at 1359 (CST) hours, all off-site AC power (except 13.8KV supplied to the Technical Support Center) was lost for approximately four minutes during refueling shutdown conditions. At the time of this event, all fuel assemblies were off-loaded in the Spent Fuel Pool. The loss of off-site AC power caused a temporary loss of all 4.16KV and 480V vital loads along with non-vital loads including instrument air and plant lighting. Vital and non-vital loads were restored within four minutes when operators reclosed breakers 1A22 and 1A24, restoring power to buses 1A2 and 1A4.

Analysis of the transient identified the root cause to be personnel error. Electrical maintenance personnel were performing maintenance procedure MP-EE-BD-1, "General Electrical 4160 Volt Non-Segregated Bus Duct", on transformer T1A4 secondary side non-segregated bus duct when they inadvertently pulled the PT fuses associated with transformer T1A2 instead of T1A4. This resulted in the tripping of breakers 1A22 and 1A24 and the resultant loss of all off-site AC power (refer to the sketch at the end of the text). Bus 1A3 was not energized at the time of the transient due to scheduled refueling maintenance work.

Control Room operators, immediately recognizing the transient, proceeded to establish alternate power from Diesel Generator No. 2 at 1359 hours by manually starting the diesel (Technical Specifications did not require the diesel to be lined up for automatic operation under existing plan conditions). At the same time, electrical maintenance personnel performing maintenance procedure MP-EE-BD-1, realizing they caused the loss of AC power, reinstalled the PT fuses associated with transformer T1A2. Additionally, they notified the Control Room operators that they caused breakers 1A22 and 1A24 to trip and that AC power could be restored by reclosing breakers 1A22 and 1A24. The Control Room operators restored by AC power reclosing breakers 1A22 and 1A24 at 1403 hours. Diesel Generator No. 2 was not loaded during this incident and was shut down at 1408 hours.

The NRC was notified of the event per 10 CFR 50.72, "Four Hour Report", due to the manual start of the diesel generator.

To prevent future personnel errors of this type, corrective actions will include:

1. Labels will be mounted next to the local 4.16KV switchgear voltmeters to properly identify their sensing points.

2. Caution sings will be posted on the doors to the transformer PT fuses cautioning personnel to verify that transformer voltage is zero before pulling PT fuses.

3. Caution signs will be posted next to the transformer PT fuses cautioning personnel that pulling the PT fuses will trip associated breakers.



4. Maintenance procedure MP-EE-BD-1 will be revised to list the transformer PT fuses required to be pulled to support the maintenance activity.

5. Information will be sent to electrical maintenance personnel concerning the event and noting precautions.

As discussed in LER 87-008, a review of the generic aspects of personnel errors that have resulted in losses of all off-site power during outages has been conducted. Based on the results of this review, the following additional corrective measures will be implemented:

Prior to the 1988 outage, electrical maintenance procedures and preventative maintenance procedures for electrical equipment will be reviewed as needed to ensure the following:

a. The procedures are explicit in referring to the specific electrical equipment to be maintained.

b. Adequate precautions are included to ensure equipment is "safe" to be worked on (i.e., deenergized). Where appropriate, verification of such conditions will be required.

c. Procedures require adequate notification of responsible personnel (such as operations) just prior to activities beginning.

In addition to the procedures upgrade:

a. Additional labeling and warning signs will be evaluated and added, as appropriate.

b. The training and experience level of craft personnel allowed to perform maintenance on Class 1E equipment will be assessed and upgraded as necessary.

c. If this review of training indicates such a need, a training module on procedural compliance and the methods of and reasons for revising procedures will be established.

d. A review of training for electrical maintenance personnel not normally stationed at Fort Calhoun will also be conducted. If appropriate, improvements will be implemented.

FIGURE 1

SIMPLIFIED ELECTRICAL DISTRIBUTION PRIOR TO INCIDENT

FIGURE OMITTED - NOT KEYABLE (DIAGRAM)



Omaha Public Power District
1623 Harney Omaha, Nebraska 68102-2247
402/536-4000

May 4, 1987
LIC-87-302

U. S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Reference: Docket No. 50-825

Gentlemen:

Licensee Event Report for the
Fort Calhoun Station

Please find attached Licensee Event Report 87-009 dated May 4, 1987. This report is being submitted per requirements of 10 CFR 50.73.

Sincerely,

/s/ R. L. Andrews
R. L. Andrews
Division Manager
Nuclear Production

RLA/DJM/me

Attachment

cc: J. E. Gagliardo
Reactor Projects Branch
U. S. Nuclear Regulatory Commission

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Fort Calhoun File (2)
Mark Frans
Fort Calhoun Station Training, % J. J. Fluehr

Employment with Equal Opportunity
Male/Female

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